

Amendment to the Claims:

1. (Cancelled)

2. (Currently Amended) An image guided surgery system comprising:
a computer ~~including~~ pre-programmed with a portion of image guided surgery
software that provides minimal user functionality, full user functionality being
enabled by adding application specific software, the computer being disposed at a
5 surgical site ;

a software-integrated disposable kit including:

an openable, transportable case;

instrumented surgical tools for a preselected surgical
procedure, the tools being removably disposed in the case ;

10 a digital medium with the application-specific software
specific to the preselected surgical procedure for upgrading the image
guided surgery software to facilitate performance of the preselected
surgical procedure, the digital medium being removably disposed in
the case;

15 the case being openable at the surgical site such that surgical
tools are removable from the case at the surgical site for use in the
preselected surgical procedure and the digital medium is removable
from the case and insertable in the computer to enable full
functionality of the image guided surgery software for the preselected
20 surgical procedure;

a tracking system which locates the surgical tools while in use, the
tracking system being disposed at the surgical site ; and

a display at the surgical site used in conjunction with the computer.

3. (Previously Presented) The image guided surgery system as set
forth in claim 2 further including:

a low cost mobile cart that holds at least the computer, display, and
standard peripherals.

4. (Currently Amended) The image guided surgery system as set forth in claim 2 wherein when the computer includes: a drive which receives and reads the digital medium, the image guided surgery software is fully functional for the preselected surgical procedure and when the digital medium is removed, the image
5 guided surgery software provides the minimal user functionality.

5. (Previously Presented) An image guided surgery system including:
software-integrated disposable kits including:
a digital medium with the application-specific software; and,
instrumented disposable surgical tools;
5 a computer which receives the digital medium and processes the application specific software;
a tracking system which tracks the surgical tools during a surgical procedure;
a display used in conjunction with the computer; and
10 a means for deactivating or encrypting the digital medium against reuse at the end of the surgical procedure.

6. (Previously Presented) The image guided surgery system as set forth in claim 5 wherein the computer includes:
an input/output interface for capturing still-images and/or live video from an imaging device;
5 a graphic input/output interface for connecting to the display;
an interface for interconnection with at least one of a wired user input device and a wireless user input; and,
an interface for interconnection with tracking sensors for monitoring position and movement of the instrumented surgical tools.

7. (Currently Amended) An image guided surgery system comprising:
an integrated computer;

a software-integrated, single-use, preselected surgical procedure specific kit including:

- 5 a portable, openable housing;
 a label affixed to the housing to identify the preselected surgical procedure to be performed using the kit;
 sterile packaging in which surgical tools for the preselected surgical procedure are contained in sterile condition, the sterile
10 packaging and tools being removably disposed in the housing;
 other accessories for the preselected surgical procedure in sterile condition in sterile packaging, the other accessories and their
 sterile packaging being removably disposed in the housing;
 user input devices removably disposed in the housing; and
15 a disposable, one-time use digital medium readable by the computer and containing a portion of image guided surgery software specific to the ~~particular~~ preselected surgical procedure, the digital
 medium being removably disposed in the housing;
 a tracking system which locates the surgical tools while in use; and,
20 a display used in conjunction with the computer.

8. (Previously Presented) The image guided surgery system as set forth in claim 7 wherein the user input devices include:

a disposable, sterilizable, wireless peripheral for use by a surgeon at the surgical site for remote communication with the computer.

9. (Currently Amended) An image guided surgery system comprising:

~~a low cost integrated computer;~~

a software-integrated disposable kit including:

instrumented disposable surgical tools;

- 5 a digital medium with application-specific software, the digital medium including:

 a preprogrammed one-time-use application specific software module to be used in surgery; and

10 a preprogrammed software module describing
the surgical tools, implants, and other accessories;
the instrumented disposable surgical tools and
the digital medium being packaged in a common
shipping unit from which the tools and digital medium
are removable at a surgical site;
15 a tracking system which tracks the surgical tools during surgery; [[and]]
a computer which receives the software from the digital medium before a
surgical procedure and disables it after the procedure; and,
a display used in conjunction with the computer.

10. (Currently Amended) An image guided surgery system comprising:
a computer;
a software-integrated, one-time-use kit[[s]] including:
a shipping case;
5 surgical tools removably received in the shipping case; and,
a digital medium which includes: preprogrammed software
describing dimensional specifications of each of the tools, probes,
guides, and any other instrumented accessories contained in the kit, the
digital medium being removably received in the shipping case; and
10 a tracking system which tracks the surgical tools while in use; and,
a display connected with the computer.

11. (Currently Amended) ~~An image-guided~~ A surgery system
comprising:
15 an integrated computer;
a display used in conjunction with the computer;
software-integrated kits, each kit designed for a preselected surgical
procedure and including:
a common case;
20 surgical tools for performing the preselected surgical
procedure;

a digital medium preprogrammed with software of 3D virtual representations, images, or information ~~of instrumented~~ regarding the surgical tools, and any accessories, implants, and ~~[[any]]~~ associated hardware contained in the kit~~[[s]]~~ used to create 3D virtual representations of the surgical tools in the images on the display;

the surgical tools and the digital medium both being removably disposed in the common case

~~a tracking system which locates the instrumented surgical tools during surgery.~~

12. (Previously Presented) The image guided surgery system as set forth in claim 5, the digital medium includes:

preprogrammed software for superimposing instrumented tools, accessories, implants, and associated hardware on the images in a wire frame or a user selected custom format.

13. (Previously Presented) The image guided surgery system as set forth in claim 5 wherein the digital medium includes:

an area which stores the software application which enables full user functionality;

an area which stores specifications and characteristics of the instrumented surgical tools;

an area which stores 3D virtual representations, images, or information of the instrumented tools and accessories contained in the kit; and

an area which stores additional information relevant to a particular surgical procedure.

14. (Previously Presented) The image guided surgery system as set forth in claim 5 wherein the tracking system includes:

one of acoustic sensors, infrared sensors, video cameras, that are utilized to determine a location of the instrumented surgical tools.

15. (Previously Presented) The image guided surgery system as set forth in claim 5 wherein the tracking system includes:

a mobile cart for positioning a tracking camera in a surgical suite.

16. (Cancelled)

17. (Previously Presented) The method as set forth in claim 20 further including:

using the computer as a planning station before a surgical procedure to define surgical entry points and trajectories.

18. (Previously Presented) The method as set forth in claim 20 further including:

archiving on the digital medium a record or history of the performed surgical procedure, including the downloaded diagnostic images, selected
5 instruments, implants, length of surgical time, notes, or other relevant information obtained during the surgical procedure.

19. (Previously Presented) The method as set forth in claim 20 further including:

replaying archived data for review and diagnostic follow-up.

20. (Currently Amended) A method of image guided surgery using a computer, a one-time-use surgical application specific kit that contains a digital medium with application specific software and surgical tools and accessories, a tracking system that locates the surgical tools while in use, and a display, the method
5 comprising:

at a surgical site in preparation for a surgical procedure, removing the digital medium from the kit and inserting [[it]] the digital medium into the computer;
augmenting software on the computer with the software from the digital medium to process diagnostic images, register the diagnostic images to a patient's

10 anatomy, register different sets of imaging modalities to each other, and track locations of the ~~instrumented~~ surgical tool;

during [[a]] the surgical procedure, displaying a virtual representation of the surgical tool on the image, correlating movement of the virtual tool representation on the image with movement of the corresponding ~~instrumented~~ surgical tool in
15 physical space;

~~disposing of the tools and~~ deactivating or encrypting the digital medium against reuse after the surgical procedure.

21. (Previously Presented) The method as set forth in claim 20 further including:

preventing reuse of the surgical tools.

22. (Previously Presented) The method as set forth in claim 20 further including:

disposing of the surgical instruments and the digital medium without reuse after the surgical procedure.

23. (Currently Amended) A method of image guided surgery comprising:

providing a kit which includes (1) instrumented surgical tools and accessories and (2) a digital medium which is preprogrammed with (i) at least a
5 portion of a graphics processing program and (ii) information concerning the surgical tools and accessories;

at a surgical site, removing the digital medium from the kit and inserting it into a processor which, between software with which the processor is preprogrammed and the software from the digital medium, processes electronic
10 medical diagnostic images, correlates a coordinate system of a patient with a coordinate system of the diagnostic images, tracks a location of the instrumented surgical tools in the coordinate system of the patient, and translates the instrument position into the coordinate system of the diagnostic image;

15 kit .

the surgical kit further includes:

medical appliances, and

5 displays; and the method further includes:

from the kit.

prior to placing the surgical tools, the surgical appliances, and the user control in the surgical kit, packaging the surgical tools, the surgical appliances, and user control in sterile condition in sterile packaging.

prior to placing the digital medium in the kit, programming the medium, with information about the surgical tools and the medical appliances in the kit.

prior to placing the digital medium in the kit, programming the digital medium with dimensional information about and depictions of the surgical tools.

after the surgical procedure, deactivating the digital media against reuse.

after the surgical procedure, disposing the surgical instruments and the secure digital media without reuse.

30. (Currently Amended) A surgical kit comprising:

a housing;

an identification of a surgical procedure to be performed using the kit, the identification being attached to an exterior of the housing;

5 ~~instrumented~~ surgical tools in sterile condition in sterile packaging which are used in the identified surgical procedure, the tools being removably received in the housing;

 medical appliances in sterile condition in sterile packaging which are used in the identified surgical procedure, the medical appliances in sterile packaging being
10 removably disposed in the housing;

 an operator control in sterile condition in sterile packaging for electrical interconnection with a graphics processor which is preprogrammed with image guided surgery software that provides limited user functionality outside a sterile field, the operator control in sterile packaging being removably disposed in the housing; and,

15 a digital media preprogrammed with a portion of an image guided surgery processing program and descriptive information concerning the surgical tools and the appliances in the kit which is readable by the processor to upgrade the preprogrammed image guided surgery software to full user functionality for the identified surgical procedure, the digital media being removably disposed in the
20 housing.

31. (Original) An image guided surgery system comprising:

a set of surgical tools which are instrumented to be tracked during image guided surgery;

5 a processor which is preprogrammed with less than all of the software which is used for manipulating diagnostic images during the image guided surgery and for tracking the movement of the instrumented surgical tools during the image guided surgery;

 a digital media which is preprogrammed with a remaining portion of the software for processing the diagnostic image data and tracking movement of the

10 instrumented surgical tools and with descriptive information concerning the instrumented surgical tools.

32. (Original) The system as set forth in claim 31 wherein the processor includes:

a reader which receives and reads the digital media.

33. (Original) The system as set forth in claim 32 wherein the processor further includes:

a deactivator which deactivates the digital media against reuse at the end of an image guided surgical procedure.

34. (Currently Amended) The system as set forth in claim ~~[[32]]~~33 further including a surgical kit which includes:

an indication of a surgical procedure with which the kit is to be utilized;
the instrumented surgical tools for use in the indicated surgical procedure;

5 and,

the digital media.

35. (Original) The system as set forth in claim 34 wherein the kit further includes:

surgical appliances used in the indicated procedure; and

a user input control for controlling the processor, the user input control,
5 the surgical appliances, and the surgical tools all being in sterile condition in the kit.

36. (Currently Amended) The system as set forth in claim ~~[[31]]~~33 wherein the processor includes:

an interface for interconnection with a source of three-dimensional electronic diagnostic images;

5 an interface for interconnection with a human-readable display for displaying diagnostic images and superimposed representations of the surgical tools;

an interface for interconnection with a user input control; and,

an interface for interconnection with optical sensors for monitoring position and movement of the instrumented surgical tools.

37. (Currently Amended) The system as set forth in claim 31 wherein the digital media includes:

- a first memory portion which stores the remaining software portion;
- a second memory portion which stores descriptive characteristics of the instrumented surgical tools;
- a third memory section which stores shape displays corresponding to the surgical tools for display superimposed on a display of the diagnostic image; and,
- a fourth memory portion which carries additional information.

38. (Previously Presented) An image guided surgery system having a tracking system for tracking movement of surgical tools, a human-viewable display, and a computer with limited user functionality for retrieving surgical information, displaying and manipulating diagnostic images on the display, surgical planning, and superimposing representations of the surgical tools on the images on the display, further including:

- a single use digital medium containing software to upgrade the computer temporarily to full user functionality for a preselected surgical procedure; and,
- a means for disabling the software from being reused to upgrade the computer after the preselected surgical procedure.

39. (Previously Presented) A method of implementing a computer-implemented procedure, the method comprising:

- providing an integrated computer which receives a digital medium and which renders the digital medium inoperative;
- opening a software-integrated disposable kit and removing a digital medium with application specific software and any associated elements;
- inserting the digital medium into the integrated computer;
- performing the procedure;

- deactivating or encrypting the digital medium against reuse in the
- 10 integrated computer;
- removing the digital medium from the integrated computer.